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**Datasheet for the decision
of 26 October 2006**

Case Number: T 0042/06 - 3.4.01

Application Number: 96308666.5

Publication Number: 0777125

IPC: G01R 21/133

Language of the proceedings: EN

Title of invention:

Vector electricity meters and associated vector electricity
metering methods

Applicant:

GENERAL ELECTRIC COMPANY

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 84, 111(1)

Keyword:

-

Decisions cited:

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Catchword:

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Case Number: T 0042/06 - 3.4.01

D E C I S I O N
of the Technical Board of Appeal 3.4.01
of 26 October 2006

Appellant:

GENERAL ELECTRIC COMPANY
1 River Road
Schenectady, NY (12345)

Representative:

Goode, Ian Roy
London Patent Operation
General Electric International, Inc.
15 John Adam Street
London WC2N 6LU (GB)

Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted 16 August 2005
refusing European application No. 96308666.5
pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: B. Schachenmann
Members: G. Assi
H. Wolfrum

Summary of Facts and Submissions

I. The appellant (applicant) lodged an appeal, received on 17 October 2005, against the decision of the examining division, dispatched on 16 August 2005, refusing the European patent application No. 96308666.5 (publication number 0 777 125). The fee for the appeal was paid on 17 October 2005. The statement setting out the grounds of appeal was received on 21 December 2005.

In the contested decision, the examining division held that the subject-matter of the claims then on file lacked clarity (Article 84 EPC).

II. On 14 June 2006 the appellant was summoned to oral proceedings scheduled to take place on 27 October 2006.

III. With a communication dated 29 August 2006 the Board proposed an amended claim 1 considered to meet the requirement of clarity. Moreover, the Board announced the intention to remit the case to the first instance for further prosecution if the appellant declared its agreement with claim 1.

IV. With a letter of 20 September 2006 the appellant stated its agreement with claim 1 proposed by the Board. The appellant requested that the oral proceedings be cancelled and that the case be remitted to the examining division for further prosecution on the basis of the following documents:

Claims:

No. 1 proposed by the Board with the communication of 29 August 2006 and approved by the appellant with the letter of 20 September 2006;

Nos. 2-4 filed with the grounds of appeal;

Description:

Pages 1-23 of the application as filed;

Drawings:

Sheets 1/20-20/20 of the application as filed.

V. The oral proceedings were cancelled with a notification of 4 October 2006.

VI. The wording of claim 1 reads as follows:

"A method of metering electricity on a power line having at least two conducting paths and a sinusoidal fundamental frequency component, comprising the following steps which are performed by an electricity meter:

- sensing line voltage and line current signals on the power line, the signals having the sinusoidal fundamental frequency component of the power line and multiple harmonics thereof;*
- producing a fundamental frequency reference signal by inputting, for each phase of the power line, a phase-to-neutral voltage signal produced from the sensed line voltage signals to a narrow-band filter having a passband approximately centred on the sinusoidal fundamental frequency component of the power line to produce fundamental frequency voltage signals which are combined in linear combining means to produce the fundamental frequency reference signal,*

- *determining an interval of orthogonality for the sensed line voltage and line current signals by detecting the passage of a predetermined integral number of cycles of the fundamental frequency reference signal;*
- *converting the sensed line voltage and line current signals into corresponding digital signals; and*
- *computing a vector metering quantity for the power line for the determined interval of orthogonality from the digital signals."*

Claims 2-4 are dependent claims.

Reasons for the Decision

1. The appeal is admissible.
2. In the contested decision, the examining division held that the expression "*interval of orthogonality*" and the terms "*phase*" and "*conducting path*" rendered the subject-matter of the claims then on file unclear.
3. The Board considers that the objection concerning the "*interval of orthogonality*" was justified. Indeed, it results from the description (see, for example, the published application, page 3, lines 36-39 and 51-55; page 8, lines 7-11) that this interval is essential for the invention, in particular for carrying out the claimed step of computing a vector metering quantity for the power line. As such, the interval has to be clearly defined and, as a matter of fact, the amended claim 1 now on file explicitly recites all the features

necessary for determining the said interval. The amendments made to claim 1 are derived from the disclosure on page 8, lines 13-40.

As regards the terms "*phase*" and "*conducting path*", the Board holds that they should be given the usual meaning in the art. Thus, a "*conducting path*" represents a wire of the power line that may have different topologies (see page 3, lines 47-49), whereas the term "*phase*" is related to its voltage and current signals (see page 3, line 58 to page 4, line 2). In view of this, there is no need to define these terms in the independent claim.

4. The amended claim 1, therefore, meets the objections raised by the examining division in the decision under appeal. Moreover, the Board does not have any further objection concerning clarity.

5. In these circumstances, the Board considers it appropriate to remit the case to the first instance for further prosecution (Article 111(1) EPC, second sentence, second alternative). In this respect, attention is drawn to the fact that the Board has examined the issue of clarity of the subject-matter of claim 1 only. As regards the dependent claims 2-4 on file, however, it appears *prima facie* that there is an ambiguity concerning the computation of the vector apparent volt-ampere-hours according to the wording of present claim 4, which does not correspond to what is shown by Figure 19 of the application. The following documents, which belong to the knowledge of the Board, may be useful for clarifying any terminological issue that may arise:

- H.L. Curtis *et al.*, "*Definitions of Power and Related Quantities*", *Electrical Engineering*, April 1935, pages 394-404, and

- P.S. Filipski *et al.*, "*Discussion of power definitions contained in the IEEE dictionary*", *IEEE Transactions on Power Delivery*, Vol. 9, No. 3, July 1994, pages 1237-1244.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance for further prosecution on the basis of the following documents:

Claims:

No. 1 proposed by the Board with the communication of 29 August 2006 and approved by the appellant with the letter of 20 September 2006;

Nos. 2-4 filed with the grounds of appeal;

Description:

Pages 1-23 of the application as filed;

Drawings:

Sheets 1/20-20/20 of the application as filed.

The Registrar:

The Chairman:

R. Schumacher

B. Schachenmann